Title:	**Recent applications of metal nanoclusters for the analysis of nucleic acids.**
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micro ribonucleic acids (miRNAs) are analytes of great interest due to their role in gene regulation, more specifically in gene silencing. They are known to act as biomarkers for a variety of affections like cancers and neurodegenerative diseases, since they have been found overexpressed in affected cells. Therefore, its detection is key to diagnosis of early and advanced states of these diseases, so there is a need for quantitative and specific methods to target miRNAs. DNA templated fluorescent silver nanoclusters (DNA-AgNC) can meet the requirements, and its biocompatibility makes it suitable for analysis *in vivo*.

Nanoclusters (NCs) are tiny (below 2 nm) aggrupations of atoms of a metal (from a few to ten) that have quantized molecule-like orbitals, enabling fluorescence. Traditional detection methods of various analytes based on fluorescence and commonly used detection methods for miRNA detection are reviewed in this work with the objective of comparing them to DNA-AgNC. Several strategies involving DNA-AgNC for miRNA detection (isolated and from total RNA samples) are discussed, including generation and quenching of a fluorescent signal. Some signal amplification methods to enhance their sensitivity are mentioned as well.

The properties of gold nanoclusters (AuNCs) are also studied, along with some of their applications in the areas of imaging, drug carrying and loading, and catalysis.

Keywords: DNA, RNA, nanocluster, fluorescence, microRNA